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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICANT: MATEY, JESUS

Application No.: 10/039,090

Filing Date: 01/02/02

For: INFORMATION ON DEMAND

Art Unit: UNKNOWN

TRANSMITTAL OF PRIORITY DOCUMENT

Director for Patents and Trademarks
Washington, D.C. 20231

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for which the above-identified patent application claims priority from.


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Respectfully Submitted

HEAD, JOHNSON & KACHIGIAN

Date: 02/08/02

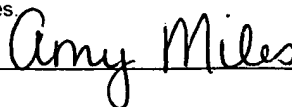
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(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference GW-G30600

2. Patent application number
(The Patent Office will fill in this part) 0100076.9 03 JAN 2001

3. Full name, address and postcode of the or of each applicant (underline all surnames) Pace Micro Technology Plc

Victoria Road
Saltaire
Shipley
BD18 3LF

Patents ADP number (if you know it) 6905293001

If the applicant is a corporate body, give the country/state of its incorporation

G.B

4. Title of the invention Information on Demand

5. Name of your agent (if you have one) Bailey Walsh & Co.

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

5, York Place
Leeds
LS1 2SD

Patents ADP number (if you know it)

224001 ✓

6. If you are declaring priority from one or more earlier patent applications, give the and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / years)
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7. If this application is divided or otherwise derived from an earlier UK application, the earlier application	Number of earlier application	Date of filing (day / month / years)
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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer "Yes" if:

Yes

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body
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Continuation sheets of this form

Description

7

Claim(s)

-

Abstract

-

Drawing(s)

-

10. If you are also filing any of the following, state how many of each item.

Priority Documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents
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11. I/We request the grant of a patent on the basis of this application

Signature



Date

02.01.01

12. Name and daytime telephone number of person to contact in the United Kingdom

G Wood
0113 2433824

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Information on Demand

The invention to which the application relates is to the provision of information in an improved format to a viewer of video on a display screen generated from data which is broadcast from a remote location. In particular the information is provided from the broadcaster and interpreted and processed by a broadcast data receiver (BDR) provided at the location of the viewer.

Typically, when a viewer is watching a television programme, the data for the generation of the programme is broadcast from a remote location and what the viewer sees and how often they see it is determined by the broadcaster providing the data. The fact that the viewer may not be able to see certain data, which is displayed sporadically, when the viewer wishes to see it, can cause frustration to the viewer and, in some instances, can prevent the viewer from continuing to watch the programme. This can be particularly frustrating during the transmission of programmes which are live, which tend to be, although not exclusively, sports events. In this type of event, as the action is happening at the same time as the viewer is watching, the viewer is obviously not aware of the final outcome and is therefore entirely reliant upon the information provided by the broadcaster. However, if the viewer misses part of the transmission or the broadcaster omits to provide information, the viewer may have to watch the programme for a significant period of time before they can ascertain exactly what is being shown and/or what other events are happening at the same time.

Thus the problems which this invention addresses can be exemplified as follows. Firstly, if a viewer tunes to a channel and would like to know the score of a sports event being shown straightaway they cannot currently obtain that information unless the broadcaster decides, at their sole discretion, when to display the same. The same applies if the viewer wishes to know who is playing. A further problem is that if the viewer does not want to watch the whole game but wants to be warned when

there is a specified event such as a goal in a football match, while watching another programme, the viewer at present cannot be informed of the event .

The aim of the present invention is to provide information to the viewer as and when the viewer designates so that the viewer has a degree of control over the display and provision of the information.

In a first aspect of the invention there is provided a broadcast data receiver for the reception of data broadcast from a remote location, processing of the same and the generation of video and audio to form a television programme for viewing and characterised in that the receiver includes an Event Information Table (EIT) which includes a string of data which comprises a series of information groups, and which string of data can be activated in respect of specified television programmes generated via the broadcast data receiver.

In one embodiment the string of data is activated in respect of a live "Sport" event and in this embodiment the string can include any or any combination of the score of the sport event (football, golf, basketball, tennis, etc.), participants in the event, location of the event, scorers in the event and so on to suit particular requirements for the event.

Typically the data for this string and the groups of data are updated in real time at the broadcaster location and transmitted to the receiver.

In one embodiment the invention provides the viewer with the option of obtaining information on demand relating to a particular programme and/or a specific event occurring during the television programme.

In a further embodiment, in addition or alternatively, the viewer is warned when a specific event has occurred even if they are not watching the particular television programme or listening to an audio channel. An example of this is that if there is a change in the score of a game of

football being shown on a particular channel, and the viewer is watching another channel, the viewer can request that they are informed when the change in score occurs.

The introduction of this invention in the current Digital TV systems requires a change in the SI tables, and/or in the way the EEPG (Electronic Programme Guide) handles the SI information and/or in the way the SI is generated.

Specific embodiments of the invention are now described.

In a preferred embodiment the invention requires the use of 2 descriptors in the EIT p/f "actual" and "other" tables (for the actual Transport Stream and for other Transport Streams). These EIT tables are sent to the Broadcast Data Receiver (BDR) whichever frequency the BDR is tuned to, so only one tuner is required. Using 2 tuners would speed up the process, as only the EIT p/f actual (for 2 different TS) would be required.

Particularly, the 2 descriptors needed are the following:

1. content_descriptor (DVB standard). The field content_nibble_1 carries information about the type of event. If the type of event is "sport" this field carries the value "0x4". The broadcaster might be interested in using also the field content_nibble_level_2 in order to specify a bit more the type of sport events that will include information about the score. For example it might not be included for athletics events or sports magazines but might be included for football or team sports).
2. private_sport_event_descriptor (broadcaster specific descriptor). This (optional) descriptor will be only relevant if the type of event is "sport". In that case, it will carry the information about the score. This information is carried in string format, including end of line characters. The format of this descriptor is explained below

Syntax

No. of bits Identifier

```
private_sport_event_descriptor()
```

descriptor_tag	8	uimsbf
descriptor-length	8	unimsbf
for (I=0,I<N,I++)		
text_char	8	unimsbf

The broadcaster supplies the text in the desired format. If the event is a football game the text could be something like "Manchester City = 1\nManchester United - 1" where \n stands for the character End Of Line. In one format the electronic programme guide facility (EPEG) can be used to display this information as

```
Manchester City = 1
Manchester United = 1
```

Similarly, for a golf game, the string "Montgomerie = .9\nBallesteros = .9\nNorman = .8\nWoods = - 7" will lead to something like:

```
Montgomerie = -9
Ballesteros = -9
Norman = -8
Woods = -7
```

However, in the case of a motor race, we might prefer something like "1 Schumacher 1:10:30\n2 Hakinnen 5s\n3 Coulthard 9s\n15 De la Rosa 4 laps" with the following consequences:

```
1 Schumacher 1:10:30
2 Hakinnen 5s
3 Coulthard 9s
15 De la Rosa 4 laps
```

Upon receipt of these descriptors, the EPEG will store the string containing the score only for the events whose type and subtype (nibble1

and nibble2) match the broadcaster requirements as stated before. The user, while watching a sport event, could request the score by pressing a specified key in the remote control and the EEPG could display a pop-up containing this information until the user presses the same key again to dispel the pop-up.

For the second possibility of this invention, the user presses a specific key in the remote control to indicate his/her particular interest in the current sport event. The user can then watch a different channel and he/she will be warned when a new `private_sport_event_descriptor` (for that specific sport event) arrives. The EEPG will set a flag associated with the score of this event. When a new EIT p/f (carrying information about this event) arrives, the EEPG checks if the score has changed and the state of this flag. If the flag is set and the score has changed, a pop-up will be displayed, offering the possibility of re-tuning quickly by pressing the OK key. If this is not too late, the user might be able to watch the relay (for example in a football game).

For both applications, the EEPG might have an indicator to remark the existence of this possibility. For example there could be a RCU button close to a caption like "Score". This button and caption could appear in the now-next bar.

The same button could be used to reset the value of the flag (used in the EEPG) when the user is no longer interested in this sport event.

Change is also required at the head end or broadcaster (where the SI is generated). There must be updating the score of the events where this service is available. This will update the descriptor carrying the score and will increase the EIT p/f version number (the STB only reads a new EIT table when the version number is bigger than the last processed one). Speed in this process, even if always desirable, is only a particular requirement for the 2nd utility of this invention.

Thus in a practical example, the viewer tunes to a sport event and wishes to be able to check the score by pressing one RCU key (key A). In accordance with the invention rather than having to sometimes wait and wait for the score to be shown, in accordance with the invention a string on the EIT table for the sport event being watched is to be displayed when the user presses a specific key in the RCU. A display will appear containing information in a very simple format (name score name score.....name score). Pressing the same key again causes the display to be dispelled. As we are tuned to the TS containing the information, no additional hardware is required.

In another practical example, a more sophisticated use of this invention is the option of being warned when the score changes. It can work in a football match. If the viewer does not want to watch the whole match the BDR can send a message saying that the score has changed to be displayed on screen and the viewer can go back and see the repetition (replay). Using this invention the viewer does not miss a goal. The viewer can achieve this by pressing a specific key in the remote control (key:B) to let the BDR know that they are still interested in knowing any changes in the score. When this happens, a display appears indicating so and by pressing the OK key over this display the viewer can directly tune again to the football match and see the repetition (replay). In this case, the BDR can be provided with 2 tuners, as the information about the football match might be carried in a different Transport Stream (TS) to the one in which the film that the viewer is watching is included. Alternatively one tuner can be used as the EIT p/f is broadcasted to the BDR for the current TS and for other TS's. Upon receipt of a change of score for example, the BDR can tune to the channel where the score occurred and although a secondary tuner would speed up the process it is not necessary for the invention to function.

This embodiment also needs someone at the headend to update in real-time. Thus the score can be shown at any time - the user can watch a film

and be aware of the changes in the score of a particular sport event, being able to tune to it very fast, to catch the repetition.

Example 1: Manchester Utd 1 Manchester City 1.

Example 2: Montgomerie - 9 Ballesteros - 9 Woods - 8.

Example 3: Message indicating "Goal", Pressing OK the user can tune to the channel where the sport event is on.